



X-RAY ASTRONOMY 2019

Current Challenges and New Frontiers in the Next Decade

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The properties of extragalactic sources in the Chandra Source Catalog 2.0

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The Chandra Source Catalog release 2.0 (CSC 2.0) includes all the observations prior to end of 2014, performing detection and extracting source properties, and making them available in an easily accessible format ready for scientific discoveries. The CSC 2.0 covers ~ 600 deg² of the sky, sampling widely different astrophysical environments, allowing both galactic and extragalactic studies with large samples of sources. The $\sim 315,000$ unique X-ray sources in CSC 2.0 allow scientists to perform statistical studies by making use of the extensive set of uniformly calibrated properties (more than 100/source) in multiple energy bands and across a broad range of source fluxes (5×10^{-17} to 10^{-12} in the 0.5-2 keV band). Moreover, a large variety of data products are available both at the source level (e.g., spectra, light curves, and more) and at the field level where the source is detected (e.g., merged events files, exposure and background maps). In this talk, I will give a brief overview of the catalog and I will focus on the combination of X-ray and multiwavelength properties for the extragalactic sources, allowing us to unlock the extreme power of this archive. I will present the source classification based on X-ray plus multi-wavelength data or X-ray only (making use of machine learning methods). I will also showcase the results of the XZ method applied to this dataset to extract redshift information from X-ray spectra of obscured sources.

Topic

Active Galactic Nuclei: accretion physics and evolution across cosmic time

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